

# Alaska Broadband Task Force **Draft Report**

Convened by Governor Mike Dunleavy

2021

# Goal – Unchanged since 2014

## Goals

Make it possible for Alaskans to participate and be competitive in the global community by extending the full benefits of broadband technology to every Alaskan.

By 2020, every Alaska household should have access to 100 megabits per second connectivity.

# Performance Measures – 2014 and 2019

Measures	Target 2014	Target 2019
Download Speeds	100 Mbps	100 Mbps
Upload Speeds	100 Mbps	100 Mbps
Latency (terrestrial)	20 Milliseconds	20 Milliseconds
Latency (satellite)		100 Ms NGSO; 670 Ms GEO
Reach (market serviceability)	100% of homes and businesses	100% of homes and businesses
Adoption/Usage (subscription)	100%	90% of adults; 100% of students
User Cost	Affordable at current rates or less	Monthly rates at or below 2019 Anchorage rates
Reliability	99.99% with backup systems	99.99% with backup systems
Progress	100% of recommendations enacted	100% of recommendations achieved

# Challenges

- There are reasons why Alaska's communications infrastructure is still developing and has not yet reached the entire population:
  - Geography. The geographic breadth and challenging terrain make much of the state hard to service from an economic perspective and make building, maintaining, and providing communication services at an affordable price for the end user difficult.
  - The Economics of Build Out. Even with the fast-paced change of communications technology, which brings more efficient and cost-effective solutions over time, the economics of statewide broadband infrastructure deployment remain challenging.
  - Lack of a comprehensive strategy. To connect all communities to the level of service required by the FCC in its National Broadband Plan and the Task Force's stated goals, a comprehensive engineering, financing, and deployment plan is needed.
  - Competing demands on public resources for infrastructure projects. Resources to provide for a variety of demands will be stretched.

# Guiding Principles - 2014

- Fiber optic systems offer great capacity advantages at 100 Mbps and above, allowing for expansion to meet future needs. Based on demand alone, fiber solutions become cost effective if total demand is 300 users or more.
- The Task Force understands that the challenge of deploying and maintaining fiber in many parts of Alaska is difficult due to a combination of population dispersion, terrain, ice scour, vast distances, and permitting challenges.
- Where fiber is not economically justifiable or for communities with fewer than 300 residents, microwave is typically the most affordable and technically achievable terrestrial alternative.
- Satellite is a near-term solution for many communities, but will exhibit higher latency, which limits performance capabilities. Satellite can be deployed as a middle mile solution for wireless or wire line end users. Although satellite technologies deliver a different user experience, such solutions should be included in any final design.
- Polar fiber projects are encouraged if project financing and deployment is a reality.
- Support funding for last-mile infrastructure where federal programs are insufficient.

# Guiding Principles - 2019

- Fiber optic systems offer great capacity advantages and the equipment used to light the fiber can be upgraded over time to improve efficiency and throughput.
- Fiber optic systems (as last-mile solutions) are most practical to deploy in areas where household/business density is relatively high and total demand exceeds 300 users.
- Fiber optic systems (as middle-mile/transport solutions), while costly, are most practical to deploy along roadways or across the sea floor.
- Challenges that confront fiber optic deployments (of all types) include population dispersion, terrain, ice scour, vast distances between communities, permitting, and physical accessibility for installation.
- Microwave wireless systems (as middle-mile/transport solutions) are typically the most affordable, technically achievable, and highest performance terrestrial alternative to fiber optics. Radios can be swapped out as technology improves.

# Guiding Principles - 2019

- Legacy satellite backhaul solutions are generally a last-resort option for remote and insular areas where fiber optics and microwave wireless systems are impractical, but new GEO HTS and LEO NGSO satellite networks that will be coming online in 2020 and 2021 should be explored as viable, competitive alternatives to microwave wireless system deployments.
- Polar subsea projects that link the Alaska's North Slope directly to Asia, northern Canada, and Europe are encouraged if project financing and deployment are viable.
- Funding should be supported for local last-mile projects where federal programs are insufficient.
- More robust mobile wireless solution deployments (4G LTE and greater) are more practical and achievable when terrestrial middle-mile capacity has been improved.
- As content and applications become more robust, their proximity to the end-user will become increasingly important. Establishing a carrier-neutral Internet Exchange (IX) peering point within Alaska for network interconnection and content cache-filling would increase efficiency, reduce latency, and reduce the need for traffic to be exchanged at distant IX facilities in Seattle and Portland, thereby freeing long-haul capacity for other uses.

# Implementation – private ownership

- Encourage private ownership of “new” infrastructure as the preferred option in order to minimize the impact on the state budget.
  - Current providers should competitively bid on portions/segments of the network additions to offer the greatest opportunity for each of the current telecom industry providers to leverage their business’s unique needs with those of this project, while not precluding new entrants.
  - A competitive bid process must be utilized to use the network and ensure non-discriminatory access for all providers if public ownership is pursued.
  - Public funding support should be considered to augment private capital.
  - Infrastructure projects such as roads, ports, railroads, pipelines, and mines financed through the state budget process must include broadband build out as part of the project budget. Incent the laying of high-speed fiber and utilities at the same time these major infrastructure projects are developed, and pursue the public-private partnership model to allow telecommunication providers to become partners in providing broadband as part of the infrastructure project.
  - Permitting processes and policies should be streamlined for utility development and deployment, use of public rights-of-way, utility easements – including broadband and telecommunications – and streamline and accelerate the process to incent major developers to invest in broadband deployment throughout Alaska.



# Implementation – Public-Private Partnerships

- Establish clear guidelines for public-private partnerships.
  - When public funds are provided to match private funds, the project owner should be obligated to fund operations and maintenance through a viable business plan and commit to non-discriminatory access for other providers.
  - Whenever public funding is used to augment private investment, the private investor should have the opportunity for return on private investment reflective of the risk but exclusive of the public investment.
  - For projects where broadband providers elect to bid jointly, it is expected that participating providers will share in the Operations and Maintenance expenses and proportion the capacity relative to carrier participation, while allowing non-discriminatory access to other providers.

# Implementation – Sustainability

- Promote long-term economic and technological sustainability.
  - It is not likely that private or public funding alone will provide the capital necessary to achieve fully the Task Force-defined broadband goals. At the same time, the introduction of public resources must not impede the further infusion of private resources, undermine past private investment, or create unsustainable projects. To that end, any component of public financing should:
    - Leverage available dollars and ensure that an owner/operator has sufficient commitment to long-term sustainability by requiring a substantial loan or other private financing accompany any grant component.
    - Demonstrate the competency, experience, and resources necessary for each applicant, as part of a competitive application process.
    - Build on prior investments by interconnecting with existing infrastructure if possible and prohibiting duplication of existing facilities, except as required to provide network reliability.

# Implementation – Reducing Barriers

- Fortify essential anchor tenant customers and remove barriers to entry.
  - Collective anchor tenant demand is necessary to spur infrastructure investment and to provide ongoing support to completed projects. Anchor tenants ensure project sustainability by supporting return on investment and repayment of loans, while funding ongoing operations, maintenance, and future network expansions and upgrades.
  - The State can uniquely serve and support anchor tenants to ensure investment in lasting infrastructure to meet current and future demands for service. In turn, the “support-to-anchor tenant” model ensures competitive neutrality by appropriately putting the customer, rather than the State, in the position of determining the service provider and technology that best meet customer needs.
  - Facilitation examples include tax incentives for anchor tenants, using the facilities for the state’s administrative network traffic.

# Review for Background

2014 Report – remains valuable to review

- Importance of broadband, and how it is used
- Economic analysis
  - E.g.; When there were fewer than 300 users on the entire proposed network, microwave was the most viable economic option. But when there were greater than 300 users, fiber optic cable became a viable option to support a larger number of users.
- Gaps to be filled for middle mile infrastructure needed for 100Mbps
- Available technologies

2019 Report – remains valuable to review

- Federal funding streams
- Updated technology

# 2014/2019 Recommendations

- Adopt a minimum service objective of access to broadband service of 100 Mbps (up and down) to households and businesses throughout Alaska by 2020, aligning with the FCC's goal for connectivity as outlined in the National Broadband Plan.
  - Adopt a minimum broadband speed goal of 100 Mbps (upstream and downstream) to households and businesses throughout Alaska by 2024.
- Establish an Office of Broadband Policy to manage the statewide plan, coordinate future strategy, planning, and policy, and market the importance of broadband adoption at the state and national level.
  - Establish a Broadband Development Office within state government or at the Denali Commission to manage progress against the updated broadband plan, as well as coordinate future strategy, planning, and policy, and lend support to the pursuit of federal funding opportunities by eligible entities.
- Prioritize rapid deployment of broadband access that improves current service levels.
- Establish technical standards to be used for the qualification of proposed construction projects wishing to gain financial support pursuant to the Task Force's recommendations.
- Establish public-private partnerships with industry innovators and entrepreneurs to rapidly accelerate broadband development and deployment within Alaska.
  - Establish public-private partnerships with industry innovators and entrepreneurs to accelerate broadband development and deployment within Alaska.
- Identify and track critical broadband infrastructure that is reaching the end of its life cycle and support efforts to upgrade or replace it as warranted.
- Encourage public and private advocacy efforts to maximize federal Universal Service Fund (USF) support for Alaska.
  - Encourage public and private advocacy efforts to maximize federal Universal Service Fund (USF) support for Alaska across all programs.
- Ensure network diversity through terrestrial (overland) means on the key Alaskan high density backhaul fiber routes.

# 2014/2019 Recommendations

- Support the pursuit of funding opportunities to develop terrestrial middle-mile infrastructure to regions of the state that do not have it, including the Aleutian Islands, and to support satellite middle-mile solutions where fiber is too expensive or impractical to build.
- Support the private sector development of additional long-haul fiber transport connections between Alaska and the Lower 48 states for the purposes of increased capacity, network diversity, resiliency, competition, and lower costs.
- Support the development of a carrier-neutral Internet Exchange (IX) point within Alaska to serve as a home for content and application companies and network interconnection/peering.
- Streamline current state e-government systems and foster improved user access, ease of use, application development, and deployment through MyAlaska.
- Streamline the permitting process for broadband deployment projects through the Office of Project Management and Permitting (OPMP) within the Department of Natural Resources to improve financial viability and shorten broadband deployment timelines.
  - Continue to streamline the permitting process for broadband deployment projects to improve financial viability and shorten broadband deployment timelines.
- Establish policies and procedures that attract and encourage investment in “Big Data” communication industries (such as data centers) in Alaska.
- Create training programs for knowledge workers, technicians, and web-based industries through the Alaska Department of Labor and Workforce Development that provide hands-on, long-term training to build business-level proficiency in digital media skills.
- Incent Internet technology innovators to patent their innovations for funding purposes.
- Establish and fund the Alaska Center for e-learning and e-commerce (AkCee) under the Alaska Distance Education Consortium to stimulate demand for broadband through increased e-learning, e-health, e-government, and digital literacy programs

# 2014/2019 Recommendations

- Partner with Alaska Native Corporations to create web-based job opportunities for Alaskans, particularly in village communities.
- Support the commercial fishing industry by pursuing better connectivity solutions at key port communities, such as Unalaska.
- Explore partnerships where appropriate with Canadian telecom networks at key cross border points where such partnerships could enhance network diversity and resiliency—particularly in Southeast Alaska.
- Support the development of long-haul subsea fiber routes between the North Slope and Asia, northern Canada, and Europe, and to the extent practical, ensure that the main Pribilof Islands, the westernmost Aleutian Islands, and Kaktovik on the North Slope are connected as part of the design.
- Create an incentive for organizations to provide digital literacy, teaching, and learning programs that facilitate broadband adoption.
- Establish a state matching program to help school districts capture an additional 10% in federal E-rate Program support for broadband special construction projects, per the FCC's 2014 E-rate Modernization orders.
- Establish funding to help anchor institutions such as schools, libraries, and post-secondary institutions acquire the service goal for connectivity (100 Mbps) when it is available in their communities.
- Establish priority funding for all public post-secondary institutions in Alaska not connected to an academic network with the service goal (100 Mbps) to expand their connectivity infrastructure.
- Establish funding to supplement E-rate Program support to help anchor institutions such as schools, libraries, and post-secondary institutions acquire the service goal for connectivity (100 Mbps) when it is available in their communities.
- Ensure public safety and emergency services receive the highest priority for state and national emergency communications access to the broadband network including the state's Emergency Operations Center.
- Future broadband planning should be done in collaboration with FirstNet and the Public Safety Broadband Network as well as with state and local providers to ensure there are efficiencies in planning, build -out, deployment, and adoption.

# Funding - 2014

## *Findings:*

- The Task Force agreed that public resources should not be considered as the only funding source. In fact, it is likely that neither public nor private funding alone will provide the capital necessary to fully achieve the Task Force-defined broadband goal of 100 Mbps to every household by 2020.
- Public funding, if available, should not impede further infusion of private resources, undermine past private investment, or create unsustainable projects.
- The Task Force recognized that the future cost of broadband deployment would be different than estimated in this report due to a variety of factors.
- Understanding the cost of broadband adoption, not just deployment, would be critical to develop public policies that provide for realistic targets based on economic considerations.



# Funding - 2014

- State can include in its annual budget a matching grant program for proposed broadband infrastructure projects.
- Explore the creation of a state broadband equalization subsidy between urban and rural rates so that both are comparable in price and service level. Rural areas with broadband service comparable to that of urban areas (price and service) would not be eligible. This program could be patterned after the Power Cost Equalization (PCE) program, which is a state-funded program.<sup>56</sup>
- Consider creating a competitive state grant for organizations that provide training for digital literacy, workforce development, and broadband adoption.
- Create a state grant to reduce the local contribution required from eligible schools and libraries participating in the E-Rate program.
- Require that infrastructure projects such as roads, ports, railroads, pipelines, and mines financed with state appropriations include broadband build out as part of the project budget. This could be via bringing a telecommunications provider into the public-private partnership arrangement, or via a mandatory percentage for development of broadband infrastructure (similar to 1 percent for art requirements) or a budget not based on a percentage, but on actual costs. Reverse auction or otherwise incent the laying of high speed fiber and utilities at the same time these major infrastructure projects are developed.
- Streamline permitting for access across state land and work to coordinate the permitting process across federal and Native-owned land.
- Examine the Alaska Universal Service Fund to determine if revisions to the fund are necessary, including ensuring statutory authority for funding broadband services.